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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/513,067 02/24/2000 Christopher J. De Simone AB-928 US 5695

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BEVER HOFFMAN & HARMS, LLP
TRI-VALLEY OFFICE
1432 CONCANNON BLVD., BLDG. G
LIVERMORE, CA 94550

EXAMINER

LUU, CHUONG A

ART UNIT PAPER NUMBER

2825

DATE MAILED: 04/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/513,067

Applicant(s)

DE SIMMONE ET AL. 

Examiner

Chuong A Luu

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6, 7, 10-14 and 16-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-43 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 10-14 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 21-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 26 July 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's arguments with respect to claims 1-3, 6-7, 10-14, 16-20 and 29 have been considered but are moot in view of the new ground(s) of rejection.

PRIOR ART REJECTIONS

Statutory Basis

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Rejections

Claims 1-3, 6-7, 11-14, 16-19 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Lacap (U.S. 5,905,299)

Lacap discloses a thermally enhanced thin quad flatpack integrated circuit package with

(1); (12) a semiconductor chip (606);

a package body (600) formed of a hardened encapsulant material (604);

a plurality of metal leads (602), wherein each lead (602) is electrically connected (612) to the chip (606);

a flat heat spreader (614) (metal plate) fully encapsulated within said package body (600), wherein the chip (606) is mounted on the plate (614) and an encapsulated first portion of each of the leads (602) overhangs a periphery of the plate (614);

a plurality of electrically isolated, encapsulated members, wherein each said member extends from a perimeter of the package body toward the plate and overhangs the periphery of the plate (see Figure 6);

(2); (13) wherein the plate is comprised of copper and has a CuO or Cu₂O film on all surfaces thereof (see column 7, lines 18-28);

(3); (14) wherein an electrically insulative, thermally conductive adhesive layer is attached between the first portion of the leads and the plate, and said layer is covered by said encapsulant material (see column 7, lines 24-28);

(6) wherein each said member extends from a corner of said package body (see Figure 6);

(7) wherein the metal plate is connected to said members by an electrically insulative, thermally conductive adhesive layer (see column 7, lines 24-28. Figures 6);

(11) wherein the encapsulant material is between said plate and the first portion of the leads (see Figure 6);

(16) further comprising a plurality of electrically isolated members extending from said frame adjacent to said leads; wherein each said member overhangs the periphery of the plate and is in a connection with said plate (see Figure 6)

(17) wherein each said member extends from a corner of said package body (see Figure 6);

(18) wherein the metal plate is connected to said members by an electrically insulative, thermally conductive adhesive layer (see column 7, lines 24-28. Figures 6);

(19) wherein each connection is a metal to metal connection between the plate and the respective member (see Figure 6);

(29) wherein each said metal to metal connection is between the respective member and a protrusion of the flat metal plate is stamped or swaged against the respective member, thereby forming the metal to metal connection (see Figure 6).

Claims 10, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lacap (U.S. 5,905,299)

Lacap discloses the claimed invention except for wherein the plate is formed of metal, and the metal plate has a thickness that is at least two times a thickness of said leads (see Figure 6). It would have been obvious to one having ordinary skill in the art at

Art Unit: 2825

the time of the invention was made to modify the thicknesses of metal plate and the leads to a specifically desired size to satisfy its requirement, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

Claims 21-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 30-43 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The examiner has reviewed the prior art in light of applicant's claimed invention and finds that the claims define over the prior art. The prior art does not disclose or suggest inter alia the limitations "...wherein two leads of increasing width are adjacent and extend from opposite sides of a first corner of the perimeter of the package body, and three metal pseudo tie bars each extending diagonally from a first end located at a second corner, a third corner, and a fourth corner, respectively, of the perimeter of package body to a second end overhanging the periphery of the plate and each being in a connection with the plate....".

Art Unit: 2825

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A Luu whose telephone number is (703)305-0129. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (703)308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

CAL
CAL
April 3, 2003

C. Luu
CHUONG A LUU
EXAMINER